TRANSLATION

METHOD OF MANUFACTURING THERMAL TURBINE ROTORS

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AIR FORCE SYSTEMS COMMAND

WRIGHT-PATTERSON AIR FORCE BASE

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UNEDITED ROUGH DRAFT TRANSLATION

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METHOD OF MANUFACTURING THERMAL TURBINE ROTORS

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Rotor forgings of thermal turbines are marked by sudden changes in diameter, which are substantial especially in low pressure rotors at the point where the rear peg is attached the rotor drum. This inconvenience cannot be removed neither in welded rotors nor in objects produced by the existing method. At foundaries are done faulty forgings of places where both parts are joined, which results in nonqualitative material at the point where the peg goes to the drum.

The mentioned inconvenience is eliminated by the method of manufacturing thermal turbine rotors composed of rotor drum and rotor plug

according to the invention, by which at the rotor peg will be created a disk expansion part, which will be welded onto the rotor drum by circular welding, whereby the radical interior spanned in the welding decreases during the welding by differently making the rotor drum and rotor plug.

An example of the invention is shown in the applied drawing representing the feasibility of a rotor system according to the invention.

The rotor consists of drum 1 of the rotor and peg (plug) 2 of the rotor. At peg 2 of the rotor is made a disk expansion part which is welded onto drum 1 of the rotor by circular welding. Tangential internal stresses originating in the welding after the weldings are not distinguished from the tangential internal stresses in usual circumferential weldings. Radical internal stress in the welding decreases during the welding by different preheating of drum 1 of the rotor and peg 2 of the rotor.

The convenience of the new manufacturing method is the simplification of the form of individual forgings so that the quality of their forging is guaranteed. The use of the invention is suitable especially in low boiler rotors of steam turbines, axial compressors, and everywhere where the construction of the device requires the mutual connection of two rollers, the dimensions of which differ sharply.

Subject of the patent concerns a method of manufacturing thermal turbine rotors, consisting of

rotor drum and rotor peg, marked by the fact that at rotor peg 2 is formed a disk expansion part which is welded onto rotor drum (1) by circular welding, whereby the radical internal stresses in the welding decreases during the process of welding by different introduction of the drum (1) of the rotor ~~(1)~~ and the peg ~~(2)~~ of the rotor. ( )

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